

First record of the portunid crab *Arenaeus cribrarius* (Lamarck, 1818) (Crustacea: Brachyura: Portunidae) in marine waters of Argentina

Marcelo A. Scelzo

Departamento de Ciencias Marinas. Facultad de Ciencias Exactas y Naturales. Universidad Nacional de Mar del Plata/CONICET. Funes 3350, 7600 Mar del Plata, Argentina. E-mail: mascelzo@mdp.edu.ar

Abstract.—The first record of the portunid crab *Arenaeus cribrarius* (Lamarck, 1818) in marine waters of Mar del Plata, Buenos Aires province, Argentina (38°S, 57°W) is documented. Juveniles and preadult specimens of the species were captured in waters at depths between 6 and 10 m on sand and mud-sand bottom, 10°C of temperature and 34‰ of salinity. This report extends the southern limit of distribution of *A. cribrarius* by more than 500 km. This species was previously known in the southwestern Atlantic from Massachusetts to Uruguay.

Resumen.—El trabajo documenta el primer hallazgo del cangrejo portúnido *Arenaeus cribrarius* (Lamarck, 1818) en aguas marinas frente a Mar del Plata, provincia de Buenos Aires, Argentina (38°S, 57°W). Los ejemplares juveniles y preadultos de la especie fueron capturados a profundidades entre 6 y 10 m sobre fondo arenoso y areno-fangoso, en aguas con temperaturas de 10°C y 34‰ de salinidad. Con esta mención se extiende la distribución de *A. cribrarius* mas de 500 km. La especie es conocida previamente en el Atlántico Sudoccidental desde Massachusetts hasta Uruguay.

In June 2000, Mr. José L. Ungarelli, a local fisherman captured three specimens of what appeared to him as a strange crab for the marine waters near Mar del Plata (38°S, 57°W), Buenos Aires province, Argentina. The specimens were identified as *Arenaeus cribrarius* (Lamarck, 1818) (Fig. 1) a portunid crab known to range broadly from shallow waters of Vineyard Sound, Massachusetts, U.S.A., throughout the Caribbean Sea, to Brazil and Uruguay (Williams 1965, 1984; Juanicó 1978; Melo 1996, 1998, 1999). The type locality is Brazil.

This coastal species found in the Virginian to Argentinean zoogeographical provinces in the southwestern Atlantic (Boschi 2000a, 2000b) had not been previously captured south of Uruguay. The present report

in the Mar del Plata region (38°S), extends the distribution of *A. cribrarius* by more than 500 km from the previous southern limit in the southwestern Atlantic Ocean (Juanicó 1978).

The specimens were captured using a beam trawl at depths of 6 to 10 m over sand and mud-sand bottom. Water was 10°C in temperature, and 34‰ in salinity.

Specimens were measured for carapace width (CW) excluding lateral spines, and in carapace length (CL), from basal region between the frontal teeth to the postero-medial border of carapace (Pinheiro & Fransozo 1993, 1998). Measurements are in millimeters, and were obtained with a caliper to the nearest 0.1 mm accuracy. Specimens were weighed (W) in a digital scale (0.001 grams sensibility).

Family Portunidae Rafinesque, 1815
Arenaeus cribrarius (Lamarck, 1818)
 Fig. 1

Portunus cribrarius.—Lamarck 1818:259.
Arenaeus cribrarius.—Williams 1965:173,
 fig. 153.—1984:362–363, fig. 292.—
 Melo 1998:476.—1999:450, fig. 37.

Material examined.—3 juveniles females
 CW 35.5, 36.5 and 40.2 mm, CL 20.2, 21.5
 and 24.0 mm, W 5.8, 6.59 and 8.82 g. Two
 small specimens were deposited in the col-
 lections of the Departamento de Ciencias
 Marinas, Universidad Nacional de Mar del
 Plata, and the larger specimen in the Museo
 Argentino de Ciencias Naturales “Bernar-
 dino Rivadavia”, Buenos Aires, Argentina
 (Collection number: MACN 34616).

Remarks.—The specimens showed white
 spots characteristic of the species, and mor-
 phologically agree with the characters pro-
 vided by Williams (1984). The small crabs
 still showed a white stripe on the carapace,
 indicative of a juvenile stage. All three
 specimens are juvenile females, with the
 pleon plate still adhered to the sternum and
 they have a triangular shaped abdomen
 characteristic of juvenile stages as indicated
 by Pinheiro & Fransozo (1998).

Discussion

In recent years several new records of
 crustaceans from Argentinean marine wa-
 ters have been reported in papers and/or
 meetings. Lini et al. (1995) documented the
 first record of the isopod *Joeropsis dubia* in
 Mar del Plata; Spivak & Bas (1999) found
 the grapsid crab *Planes marinus* Rathbun,
 1914 in Mar Chiquita, 80 km north of Mar
 del Plata, together with other crustaceans
 such as the cirriped *Lepas anatifera* L.,
 1758 and the amphipod *Caprella andreae*
 Mayer, 1890, all representing first records
 for the southwestern Atlantic Ocean.

Several hypotheses have been proposed
 for the presence of these species, including
 ships fouling and ballast water, drifting
 plankton larvae, and surface current trans-

port associated with floating objects. Ac-
 cording to specialists of fishes (López
 1964), phytoplankton (Balech 1964), crus-
 taceans (Boschi et al. 1992, 2000a, 2000b)
 the Argentinean biogeographic province is
 the area between 23°S (Rio de Janeiro, Bra-
 zil) to 43°S (Rawson, Chubut). According
 to López (1964) it is possible to distinguish
 two districts: southbrazilian and bonaerense,
 with a limit around 34°S, but that limit can
 be modified according movements of water
 masses, specially near the coasts, reaching
 near San Jorge Gulf, Argentinean Patagonia
 during summer months. Low salinity waters
 of Río de la Plata are considered as a natu-
 ral barrier for the dispersion of marine fau-
 na. As it was stated by Lucas et al. (1999:105).
 . . . “the presence of winds that force onshore
 flow to the south seem to be favorable for the
 southward extension of low salinity water
 from Río de la Plata and are most likely to
 occur in spring-summer. Anomalously high
 discharge from the Río de la Plata associ-
 ated with ENSO (El Niño south oscillation)
 conditions in spring of 1997 and summer of
 1998 showed a correlation with a coastal low
 salinity intrusion as far south as Miramar”.
 . . . more than 40 km south of Mar del Plata.
 Eventually, warm waters south to the bonaerense
 littoral would be associated to a intrusions
 of the Brazil Current (Balech 1965, 1986),
 water circular movements or eddies (Piola &
 Rivas 1997), or the so called Argentinean
 flux (waters of subtropical origin) according
 to Severov (1990). Other hypotheses postu-
 late that the presence of marine biota of
 southbrazilian origin in bonaerense coastal
 region will be caused by the diminishing
 caudal of fresh-water from Río de la Plata,
 at it happened during summer and fall of
 the year 2000 (Mianzan et al. 2000).

The number of brachyuran crabs living
 in littoral waters of Argentina reach 39
 species (Boschi 1964; Boschi et al. 1992;
 Spivak & Bas 1999), of which three are
 portunids: *Ovalipes trimaculatus* (de
 Haan, 1833), *Coenophthalmus tridentatus*



Fig. 1. *Arenaeus cribrarius* juvenile: A) dorsal view, B) ventral view. Scale in millimeters.

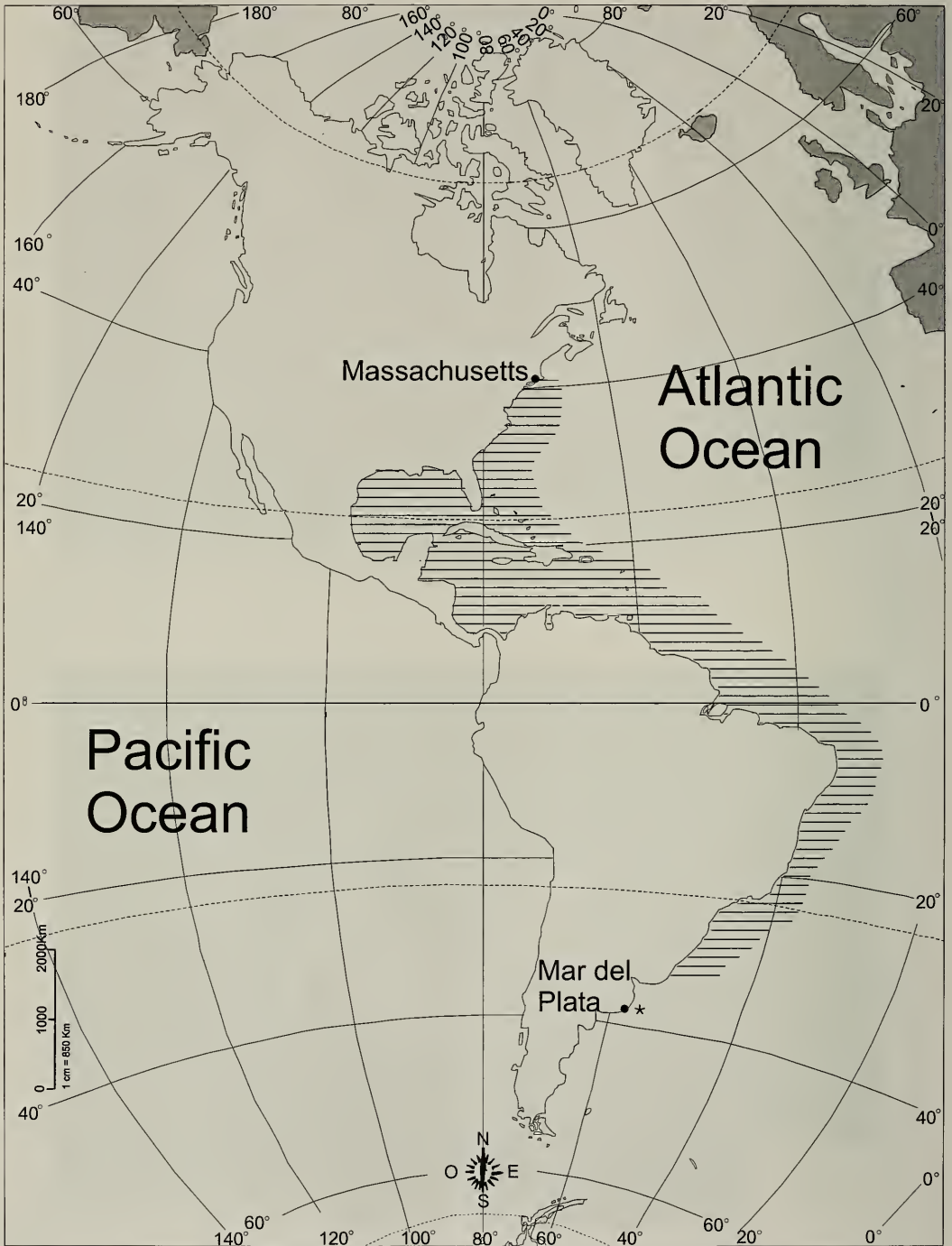


Fig. 2. Geographical distribution of *Arenaeus cribrarius* in the western Atlantic Ocean. * Indicates new record.

A. Milne Edwards, 1879 and *Callinectes sapidus* Rathbun, 1896. The presence of *A. cribrarius* adds another species to this region. *Arenaeus cribrarius* lives in shallow waters along ocean beaches from the water line to 68 m (Williams 1984; Melo 1996, 1998, 1999). Oviparous females of this species are present during September in Venezuela and Brazil (Williams 1984) and during all months in Ubatuba region (Pinheiro & Fransozo 1998). The presence of this species near Mar del Plata can be explained based on larval transport by plankton drifting from coastal subtropical waters during spring-summer, crossing Río de la Plata after metamorphoses, and then growing to CW of 35.5 to 40.2 mm; or larvae introduced by ballast water of ships, as mentioned for other portunidae species in other localities of the western Atlantic and the Caribbean Sea (Lemaitre 1995; Tavares & Mendonça 1996; Mantelatto & Dias 1999). The specimens reported herein represent juvenile stages, and thus it appears that the adult population is not yet established. The occasional finding of juveniles in marine waters of Mar del Plata, Argentina as well as in Uruguay by Juanico (1978) will be considered as expatriation areas in the distribution of the species in the southern Atlantic ocean (Fig. 2).

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